

# Work Order ID 146187

\*146187\*

Page 1

Tuesday, May 10, 2016 4:01:16 PM

Item ID: D412-664-203

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Aft Crosstube - High

Start Date: 5/10/2016 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 6/3/2016 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: mf Date: 16-5-10 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

| Draw Nbr     | Revision Nbr |  |          |  |  |  |  |  |  |
|--------------|--------------|--|----------|--|--|--|--|--|--|
| D412-664-243 | F            |  | DAS<br>6 |  |  |  |  |  |  |

|                               |                                                                      |      |  |  |  |  |  |  |  |
|-------------------------------|----------------------------------------------------------------------|------|--|--|--|--|--|--|--|
| 100                           | Document Control                                                     | 0.00 |  |  |  |  |  |  |  |
| *100*                         | DOCUMENT CONTROL                                                     |      |  |  |  |  |  |  |  |
| DC                            | Memo                                                                 | 0.00 |  |  |  |  |  |  |  |
| Doc.Control -USB or Paperwork | Photocopy bluefile and create labels as per PPP D412-664-203 CHG 010 |      |  |  |  |  |  |  |  |

|           |           |      |  |  |  |  |  |  |  |
|-----------|-----------|------|--|--|--|--|--|--|--|
| 110       | Packaging | 0.00 |  |  |  |  |  |  |  |
| *110*     |           |      |  |  |  |  |  |  |  |
| Packaging | Memo      | 3.20 |  |  |  |  |  |  |  |
| Packaging |           |      |  |  |  |  |  |  |  |

|                      |                                                                                    |      |  |  |  |  |  |  |  |
|----------------------|------------------------------------------------------------------------------------|------|--|--|--|--|--|--|--|
| 120                  | BENDING MACHINE - CROSSTUBES                                                       | 0.28 |  |  |  |  |  |  |  |
| *120*                |                                                                                    |      |  |  |  |  |  |  |  |
| CNC Bend 2           | Memo                                                                               | 1.04 |  |  |  |  |  |  |  |
| CNC Alpha 160 Bender | Bend tube as per Dwg D412-664-243 using CNC bender program 412-aft and Folio FT010 |      |  |  |  |  |  |  |  |

D412-664-203/146187

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**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Aft Crosstube - High

Start Date: 5/10/2016 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 6/3/2016 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

130

QC15- Crosstube Dimensional Check

0.00

**\*130\***

QC

Memo

0.00

Quality Control

DAS  
38  
9-89

MAY 12 2016

140

Crosstubes

0.02

**\*140\***

Crosstubes

Memo

1.29

Crosstubes

1-Drill pilot holes in tube as per Dwg D412-664-243 using drill Jig DT8550 &amp; DT8551 and drill table DT8577 using #9 holes as per QSI 10 to install towers.

2-Ream hole to finish size in tube as per Dwg D412-664-243 using drill Jig DT8550 &amp; DT8551. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-SCRIBE PART # & BATCH #  
ACCORDING TO NOTE 6

4- \*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\* Deburr &amp; Inspect for surface damage. Repair damage within limits as per Dwg D412-664-243

TW 16-05-13

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Item ID: D412-664-203

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Revision ID:

Stop **\*NS2\***

Item Name: Aft Crosstube - High

Start Date: 5/10/2016 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 6/3/2016 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

160

0.00

**\*160\***

HandFXtube

Memo

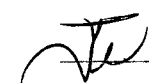
0.00

Hand Finishing Crosstubes

\*\*\*IMMEDIATELY AFTER GRINDING\*\*\*

1- PRESSURE WASH X-TUBE INSIDE AND OUT

2- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT AS PER QSI005.

 16-05-13

165

QC7-Inspect Chemical Conversion Coat

0.00

**\*165\***

QC

Memo

0.01

Quality Control

 1DAS  
38  
MAY 24 2016

170

QC5- Inspect part completeness to step on W/O

0.00

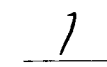
**\*170\***

QC

Memo

Quality Control

INSPECT ENGRAVING AND BATCH #

0.02  
3146187 1DAS  
38  
MAY 24 2016

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Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

180

Outsource process - NDT per QSI038 4.1

0.00

**\*180\***

Outsource2

Memo

180.00

Outsource process - NDT

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

Liquid Penetrant Inspection as per QSI 038Or

Issue P/O: 32491 LPI as per ASTM 1417

Level 2 Attach copy of NDT results to work order

MAY 27 2016

DAS  
13  
9-89

190

0.00

**\*190\***

Packaging

Packaging

Memo

0.00

Packaging

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

Inspect for transit damage

Ensure copy of NDT results attached to work order.

MAY 27 2016

DAS  
13  
9-89

200

QC5- Inspect part completeness to step on W/O

0.00

**\*200\***

QC

Memo

0.02

Quality Control

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

Inspect for damage &amp; ensure results are as per Dwg D412-664-203

DAS  
38  
9-89

MAY 31 2016

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Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

210

0.00

**\*210\***

SprayPaint

SprayPaint

Spray Painting

Memo

0.48

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

\*\*VERIFY BY DAS BATCH # TO MATCH W/O \_\_\_\_\_\*\*\*VERIFY BY 41 PART # TO MATCHW/O 9-89

\*\*\*MASK SCRIBE B# &amp; P# AND VERIFY\*\*\*

\*\*\*Mask underside of crosstube as shown\*\*\*

1-Prime inside and outside crosstube as per QSI 005 4.2 AND DWG

PRIMER: 134454START TIME: 1000FINISH TIME: 1100

2-Paint outside crosstube with White Imron as per DWG D412-664-243 and QSI 005 4.2

PAINT: ~~134454~~ 134585Start Time: 300Finish Time: 400

3- Apply clear coat after paint as per DWG

133641

DAS

419-8916-5-31

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**\*N900040100\***Setup Start **\*NS1\***

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Start Date: 5/10/2016 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 6/3/2016 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

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Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

220

QC14- Inspect Spray Paint

0.00

**\*220\***

QC

Memo

0.01

Quality Control

Then, Wrap in plastic bag to protect from scratches

DAS

9

9-89

① 16-07-06

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Item ID: D412-664-203

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**\*N900040100\***Setup Start **\*NS1\***

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**\*1\***

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Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

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Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 230                            |                          | 0.00                 |         |        |              |               |               |                  | DAS            |
| <b>*230*</b>                   | Crosstubes               |                      |         |        |              | 1             |               |                  | 41             |
| Crosstubes                     |                          |                      |         |        |              |               |               |                  | 0.89           |
| Crosstubes                     |                          |                      |         |        |              |               |               |                  | 16-6-23        |

Memo  
Assemble as per Dwg D412-664-203

1- Install center support using scoth-weld DP460 per QSI 015, as per DWG. note  
13. Install supports clamps using as per Dwg D412-644-243. Install clamp with  
rubber cushion as per DWG. note 14. \*\*\*ENSURE CLAMPS ARE ON TOP OF  
CROSSTUBE SUPPORT\*\*\* Torque clamps on support to 80-100 IN-LBS AS  
PER DWG.

A/R scoth-weld DP460 BATCH #: 132504  
EXP DATE: 8/16

2- \*\*IF NOT ALREADY PRESENT ON CHAFFING SHEILD.\*\* Apply a thin  
coat of proseal 890 per QSI 015 on inside concave surface of chafing shield and  
let cure per manufacturer's instructions. Install prosealed chafing shield onto  
crosstube by applying a thin coat of proseal 890 onto crosstube. Be sure to  
eliminate any air gaps. Install and torque clamps on chafing shield to 40-50 IN-  
LBS AS PER DWG.

A/R Proseal 890 Batch: 134500  
EXP DATE: 11/16

AFTER FINISH CURE TIME 24H

START CURE TIME: 16-6-23FINISH CURE TIME: 16-6-24

PRIOR TO PACKAGING RE-CHECK TORQUE ON CLAMPS AFTER  
CURED FOR 24H.

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[illegible]



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Item ID: D412-664-203

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Reference:

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Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                                                                                                                                                                                                              | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 270                            |                                                                                                                                                                                                                                       | 0.00                 |         |        |              |               |               |                  |                |
| <b>*270*</b>                   | Packaging                                                                                                                                                                                                                             |                      |         |        |              |               |               |                  |                |
| Packaging                      | Memo                                                                                                                                                                                                                                  | 0.00                 |         |        |              |               |               |                  |                |
| Packaging                      | Identify and pack for shipping as per PPP D412-664-203<br>*****Ensure tube is not packaged if curing time is less than 12 hrs, see step 27<br>for application time & date *****<br>Time & date of packaging: _____<br>Location: _____ |                      |         |        |              |               |               |                  |                |
| 280                            | QC21- Final Inspection - Work Order Release                                                                                                                                                                                           | 0.00                 |         |        |              |               |               |                  |                |
| <b>*280*</b>                   |                                                                                                                                                                                                                                       |                      |         |        |              |               |               |                  |                |
| QC                             | Memo                                                                                                                                                                                                                                  | 0.10                 |         |        |              |               |               |                  |                |
| Quality Control                |                                                                                                                                                                                                                                       |                      |         |        |              |               |               |                  |                |

DAS  
27  
9-89  
JUL 08 2016

16/7/12

Lm 16/07/08

# Picklist Print

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Work Order ID: 146187

**\*146187\***

Parent Item: D412-664-203

**\*D412-664-203\***

Parent Item Name: Aft Crosstube - High

Start Date: 5/10/2016

Required Date: 6/3/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:E04.02.16Reformat; Added D3189-1K/DS  
 IPP Rev:F 06-03-29 Remove Coments on Pick List JLM  
 IPP Rev:G 06.12.08 per ECN 886 EC  
 IPP Rev:H 07-04-30 As per Rev D JLM  
 IPP Rev:I 08-06-12 add comment in seq. 21 DD verified by:EC IPP rev J  
 11.04.21 DEO D412-664-243-E-1 EC verified DD IPP REV:K  
 11.10.03 DEO D412-664-243-E-2 DD verf:EC

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty    | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|-----------------|---------------|----------------|--------|
| AN6-40A                         |                        | Purchased     | No          |                     |                  | 250             | Each               | 46.0000        | 4           | 4               |               |                |        |
| <b>*AN6-40A*</b>                |                        |               |             |                     |                  |                 |                    |                | **          |                 |               |                |        |
| 3/8-24 BOLT X 3" LONG           |                        |               |             |                     |                  |                 |                    |                |             |                 |               |                |        |
|                                 |                        |               |             | <u>Location</u>     |                  |                 |                    | <u>Loc Qty</u> |             | <u>Loc Code</u> |               |                |        |
|                                 |                        |               |             | ST333               |                  |                 |                    | 46             |             |                 |               |                |        |
|                                 |                        |               |             | M133316             |                  |                 |                    | 18             |             |                 |               |                |        |
|                                 |                        |               |             | M133769             |                  |                 |                    | 8              |             |                 |               |                |        |
|                                 |                        |               |             | M134509             |                  |                 |                    | 20             |             |                 |               |                |        |
| AN6-41A                         |                        | Purchased     | No          |                     |                  | 250             | Each               | 33.0000        | 2           | 2               |               |                |        |
| <b>*AN6-41A*</b>                |                        |               |             |                     |                  |                 |                    |                | **          |                 |               |                |        |
| Bolt                            |                        |               |             |                     |                  |                 |                    |                |             |                 |               |                |        |
|                                 |                        |               |             | <u>Location</u>     |                  |                 |                    | <u>Loc Qty</u> |             | <u>Loc Code</u> |               |                |        |
|                                 |                        |               |             | ST286A              |                  |                 |                    | 1              |             |                 |               |                |        |
|                                 |                        |               |             | M129913             |                  |                 |                    | 1              |             |                 |               |                |        |
|                                 |                        |               |             | ST333               |                  |                 |                    | 32             |             |                 |               |                |        |
|                                 |                        |               |             | M133577             |                  |                 |                    | 12             |             |                 |               |                |        |
|                                 |                        |               |             | M134508             |                  |                 |                    | 20             |             |                 |               |                |        |
| D2896-1                         |                        | Manufactured  | No          |                     |                  | 230             | Each               | 2.0000         | 1           | 1               |               |                |        |
| <b>*D2896-1*</b>                |                        |               |             |                     |                  |                 |                    |                | **          |                 |               |                |        |
| Support                         |                        |               |             |                     |                  |                 |                    |                |             |                 |               |                |        |
|                                 |                        |               |             | <u>Location</u>     |                  |                 |                    | <u>Loc Qty</u> |             | <u>Loc Code</u> |               |                |        |
|                                 |                        |               |             | LG051               |                  |                 |                    | 2              |             |                 |               |                |        |
|                                 |                        |               |             | 134290              |                  |                 |                    | 2              |             |                 |               |                |        |

DAS 27  
9-89 9-89

DAS 27  
9-89 9-89

MAY 7 7 2016

DAS 41  
9-89 16-6-23

# Picklist Print

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Work Order ID: 146187

**\*146187\***

Parent Item: D412-664-203

**\*D412-664-203\***

Parent Item Name: Aft Crosstube - High

Start Date: 5/10/2016

Required Date: 6/3/2016

Start Qty: 1.00

Required Qty: 1.00

D3189-1 Manufactured No

230 Each 3.0000 2 2

DAS

**\*D3189-1\***

\*\*

41

9.89

16-6-23

Chaffing Shield

Location

Loc Qty

Loc Code

LG051 145416  
143836

3  
3

2

D3595-063-570 Manufactured No

230 Each 55.0000 2 2

DAS

**\*D3595-063-570\***

\*\*

41

9.89

16-6-23

Rubber Cushion 0.63" wide x 5.70" Long

Location

Loc Qty

Loc Code

FG 42243  
LG052 144834

8  
8  
47  
47

2

D412-664-203TRN Manufactured No

110 Each 4.0000 1 1

**\*D412-664-203TRN\***

\*\*

Crosstube Turning Detail

Location

Loc Qty

Loc Code

LG014 144119  
144120  
144121  
144122

4  
1  
1  
1

16-05-11

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Shop Packet Print

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Parent Item Name: Aft Crosstube - High

Start Date: 5/10/2016

Required Date: 6/3/2016

Start Qty: 1.00

Required Qty: 1.00

MS21042L6 Purchased No 250 Each 275.0000 6 6

**\*MS21042L6\***

Nut

\*\*

DAS  
28  
9-89

| Location | Loc Qty | Loc Code |
|----------|---------|----------|
| ST303    | 275     |          |
| m133938  | 6       |          |
| m134055  | 19      |          |
| m134509  | 100     |          |
| m134567  | 50      |          |
| m134676  | 100     |          |

MAY 27 2016

DAS  
6  
9-89

DAS  
27  
9-89

MS21920-28 Purchased No 230 Each 45.0000 4 4

**\*MS21920-28\***

Clamp

\*\*

DAS  
41  
9-89

16-6-23

| Location | Loc Qty | Loc Code |
|----------|---------|----------|
| FG       | 1       |          |
| 105884   | 1       |          |
| LG051    | 1       |          |
| M132169  | 1       |          |
| LG057    | 43      |          |
| M134130  | 2       |          |
| M134514  | 3       |          |
| M134590  | 38      |          |

135007

4

MS21920-30 Purchased No 230 Each 30.0000 2 2

**\*MS21920-30\***

Clamp

\*\*

DAS  
41  
9-89

16-6-23

| Location | Loc Qty | Loc Code |
|----------|---------|----------|
| LG57     | 30      |          |
| m131689  | 10      |          |
| m134257  | 20      |          |

2

Tuesday, May 10, 2016 4:01:16 PM

Shop Packet Print

Page 3

# Picklist Print

Page 4

Tuesday, May 10, 2016 4:01:16 PM

Work Order ID: 146187

**\*146187\***

Parent Item: D412-664-203

**\*D412-664-203\***

Parent Item Name: Aft Crosstube - High

Start Date: 5/10/2016

Required Date: 6/3/2016

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0663J

Purchased

No

250

Each

870.0000

18

18

**\*NAS1149D0663.J\***

**\*\***

Washer

Location

Loc Qty

Loc Code

ST260

227

M131618

227

ST263

592

M133134

89

M133769

12

M133812

6

M134634

485

ST269

51

M126334

51

DAS  
28  
9-89

MAY 27 2016

DAS  
6  
9-89

DAS  
27  
9-89

| Item | Qty<br>-243 | Part Number       | Description                       |
|------|-------------|-------------------|-----------------------------------|
| 1    | X           | D412-664-243      | CROSSTUBE ASSEMBLY (412 HIGH AFT) |
| 2    | 1           | D6009-129         | CROSSTUBE                         |
| 3    | 2           | D3595-063-570     | RUBBER CUSHION                    |
| 4    | 1           | D2896-1           | SUPPORT                           |
| 5    | 2           | D3189-1           | CHAFING SHIELD                    |
| 7    | 4           | MS21920-28        | CLAMP                             |
| 8    | 2           | MS21920-30        | CLAMP (OR MS21920-32)             |
| 9    | A/R         | SCOTCH-WELD DP460 | EPOXY ADHESIVE, 3M SCOTCH-WELD    |
| 10   | A/R         | PROSEAL 890 B-2   | SEALANT                           |

#### GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6009-129  
FINISHED LENGTH = 124.100±0.020 (BEFORE BENDING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (ZN C6-2, HATCHED AREA)  
PAINT OUTSIDE PER DART QSI 005 4.2  
AFTER PAINTING, REMOVE MASKING AND APPLY MATTE CLEAR COAT
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART P/N "D412-664-243" AND B/N ON INSIDE OF CUFF PER QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 47.0 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. DO NOT GRIND TUBE AFTER SHOT PEEN.

#### TURNING

- 10) WHEN TRANSITIONING TO STOCK MAT'L, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.

#### BENDING

- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 7% (BASED ON O.D.) IN LOWER HALF OF R30 BEND AND 6% (BASED ON O.D.) ON REMAINING TUBE.
- 12) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038. TO BE PERFORMED AFTER FINAL POST-BEND GRINDING. ANY ADDITIONAL GRINDING REQUIRES ANOTHER LPI INSPECTION.

#### ASSEMBLY

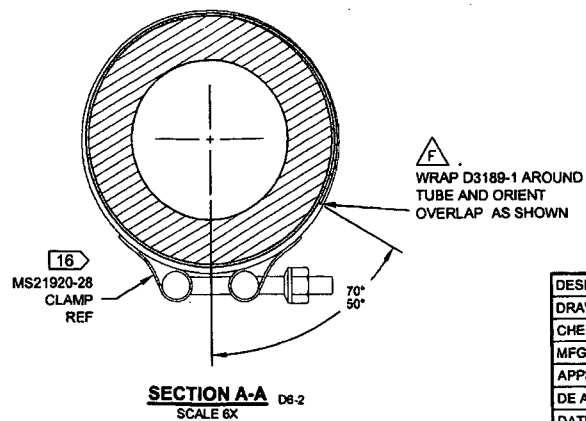
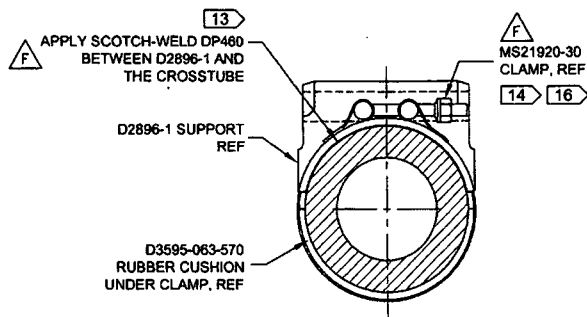
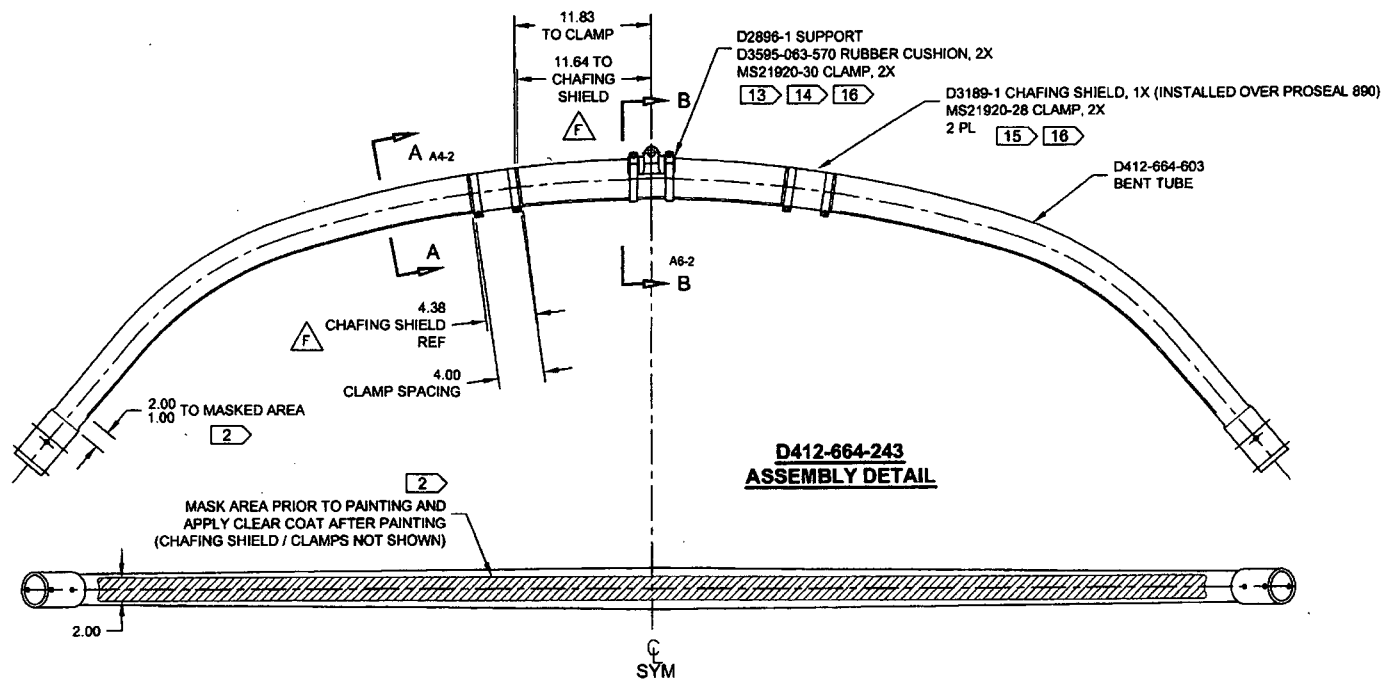
- 13) INSTALL D2896-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015.
- 14) INSTALL MS21920-30 CLAMPS (OR -32) WITH D3595-063-570 RUBBER CUSHIONS TO SECURE THE D2896-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE ON TOP SIDE OF CROSSTUBE.
- 15) APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3189-1 CHAFING SHIELD AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEALED D3189-1 CHAFING SHIELD ONTO CROSSTUBE BY APPLYING A THIN COAT OF PROSEAL 890 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.
- 16) TORQUE CLAMPS ON D2896-1 SUPPORT 80 TO 100 IN-LB. TORQUE CLAMPS ON D3189-1 CHAFING SHIELD 40 TO 50 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVES HAVE CURED FOR 24 HOURS.

RELEASED  
2014-05-26

|            |                                                                                                                                                                                                                                                                                                                                |    |          |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
| F          | NOTES RE-ORDERED, SCOTCH-WELD WAS MAGNOBOND (C8-1), ADD CLAMP RETORQUE (A8-1), REMOVE ABRASION STRIP, ADD INSPECTION WINDOW (C8-1), CHAFING SHIELD NOW 4.38 WIDE (C6-2), ADD 7% CRUSHING (B8-1), CHG BEND HEIGHT TOL. TO ±0.25 (C1-3), CHG CUFF TOL. (D2-4), CLAMPS FLIPPED TO PREVENT CHAFING (B7-2, B7-3), INCORP. DEO E-2-4 | CP | 14.04.01 |
| E          | REFORMAT/REVISE GENERAL NOTES: REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); ADD TOLERANCE (ZN B6-3, C4-3, C8-3 & C5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.                                                                                    | RF | 09.09.30 |
| D          | REMOVE D2732-058, CHANGE TO D3595-063-570                                                                                                                                                                                                                                                                                      | PH | 07.03.09 |
| C          | REMOVE D2856-800-1087, ADD D2732-058 & MAGNOBOND 6398, MS21920-32 WAS MS21920-30                                                                                                                                                                                                                                               | MB | 06.10.27 |
| B          | ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES                                                                                                                                                                                                                                                                              | PH | 05.02.04 |
| A          | NEW ISSUE                                                                                                                                                                                                                                                                                                                      | PH | 01.10.17 |
| REV.       | DESCRIPTION                                                                                                                                                                                                                                                                                                                    | BY | DATE     |
| DESIGN     |                                                                                                                                                                                                                                                                                                                                |    |          |
| DRAWN      |                                                                                                                                                                                                                                                                                                                                |    |          |
| CHECKED    |                                                                                                                                                                                                                                                                                                                                |    |          |
| MFG. APPR. |                                                                                                                                                                                                                                                                                                                                |    |          |
| APPROVED   |                                                                                                                                                                                                                                                                                                                                |    |          |
| DE APPR.   |                                                                                                                                                                                                                                                                                                                                |    |          |
| DATE       | 14.04.01                                                                                                                                                                                                                                                                                                                       |    |          |

|                                                          |                        |
|----------------------------------------------------------|------------------------|
| <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA |                        |
| DRAWING NO.<br>D412-664-243                              | REV. F<br>SHEET 1 OF 4 |
| TITLE<br>CROSSTUBE ASSEMBLY (412 HI AFT)                 | SCALE<br>NTS           |

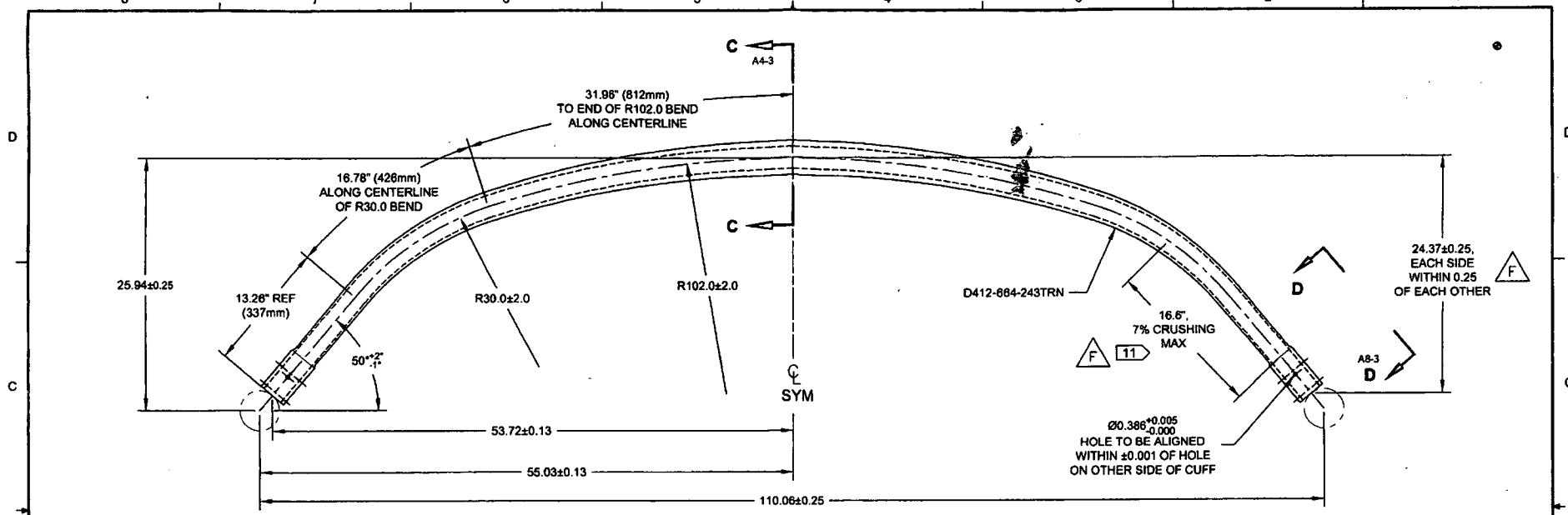
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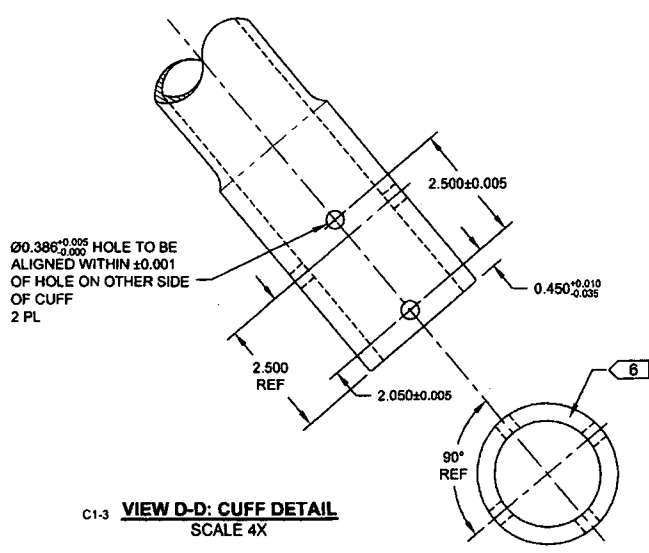
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2014-05-26

|                                                                                                                                                                                                                               |          |                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------------------------------|
| DESIGN                                                                                                                                                                                                                        |          | <b>DART AEROSPACE LTD</b>                  |
| DRAWN                                                                                                                                                                                                                         |          | <b>HAWKESBURY, ONTARIO, CANADA</b>         |
| CHECKED                                                                                                                                                                                                                       |          | DRAWING NO. REV. F                         |
| MFG. APPR.                                                                                                                                                                                                                    |          | D412-664-243 SHEET 2 OF 4                  |
| APPROVED                                                                                                                                                                                                                      |          | TITLE SCALE                                |
| DE APPR.                                                                                                                                                                                                                      |          | <b>CROSSTUBE ASSEMBLY (412 HI AFT)</b> NTS |
| DATE                                                                                                                                                                                                                          | 14.04.01 | COPYRIGHT © 2001 BY DART AEROSPACE LTD     |
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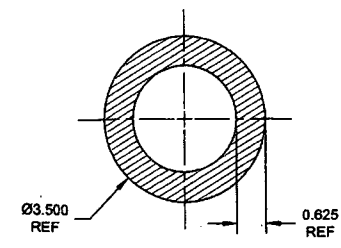
8 7 6 5 4 3 2 1



**D412-664-603**  
**BENDING AND DRILLING DETAIL**



C1-3 **VIEW D-D: CUFF DETAIL**  
SCALE 4X



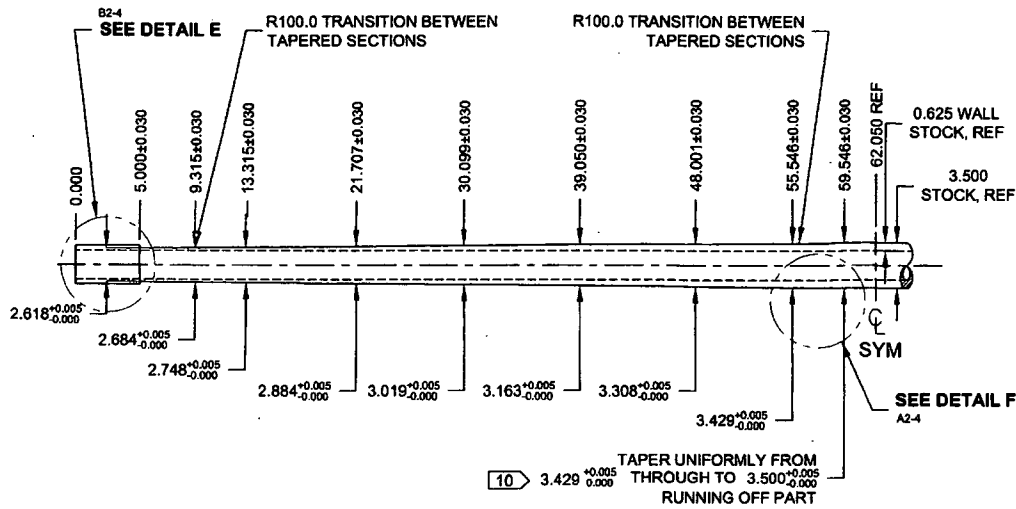
**SECTION C-C** D5-3  
SCALE 4X

**RELEASED**  
2014-05-26

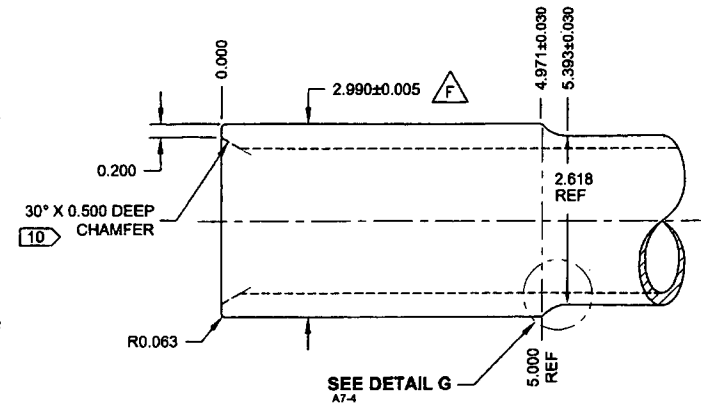
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|------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | DP       | <b>DART AEROSPACE LTD</b>                                                                                                                                                                                                                                                                    |              |
| DRAWN      | DP       | HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                                                  |              |
| CHECKED    | DW       | DRAWING NO.                                                                                                                                                                                                                                                                                  | REV. F       |
| MFG. APPR. | JP       | D412-664-243                                                                                                                                                                                                                                                                                 | SHEET 3 OF 4 |
| APPROVED   | JP       | TITLE                                                                                                                                                                                                                                                                                        | SCALE        |
| DE APPR.   | JP       | CROSSTUBE ASSEMBLY (412 HI AFT)                                                                                                                                                                                                                                                              | NTS          |
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8 7 6 5 4 3 2 1

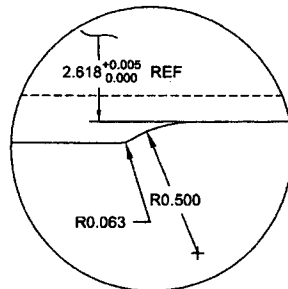




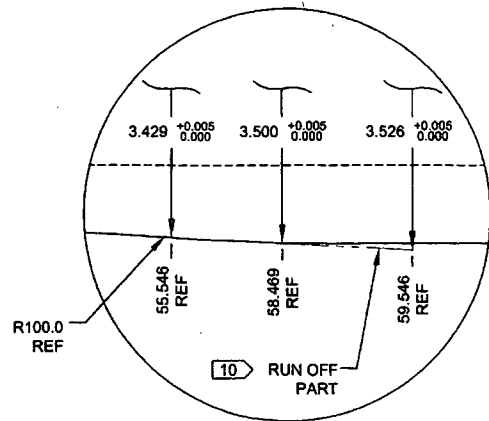
**D412-664-243TRN**  
**TURNING DETAIL**



**DETAIL E:**  
**CROSTUBE CUFF**  
SCALE 5X



**DETAIL G:**  
**CUFF TRANSITION**  
SCALE 10X



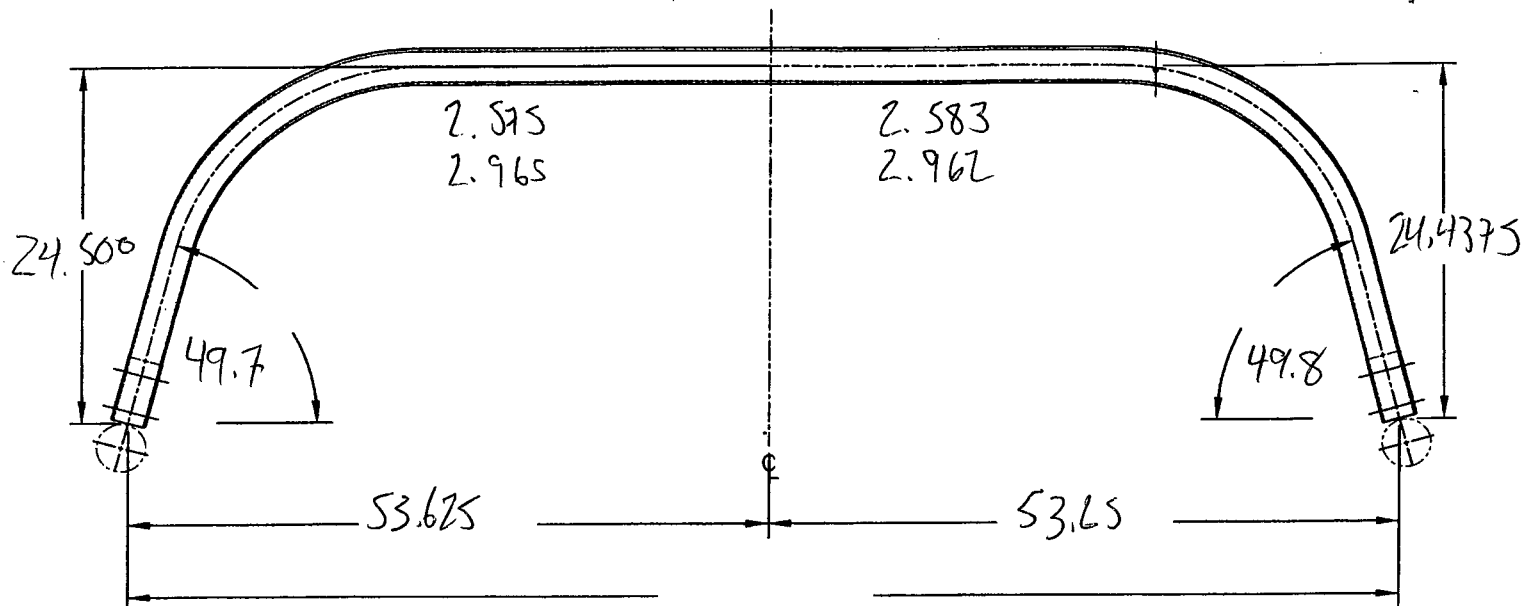
**DETAIL F:**  
**TAPER RUN-OFF**  
NOT TO SCALE

**RELEASED**  
2014-05-26

|            |          |                                                                                                                                                                                                                                                                              |              |
|------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | 92       | <b>DART AEROSPACE LTD</b>                                                                                                                                                                                                                                                    |              |
| DRAWN      | 92       | HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                                  |              |
| CHECKED    | NW       | DRAWING NO.                                                                                                                                                                                                                                                                  | REV. F       |
| MFG. APPR. |          | D412-664-243                                                                                                                                                                                                                                                                 | SHEET 4 OF 4 |
| APPROVED   |          | TITLE                                                                                                                                                                                                                                                                        | SCALE        |
| DE APPR.   |          | CROSTUBE ASSEMBLY (412 HI AFT)                                                                                                                                                                                                                                               | NTS          |
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|                                                   |                                  |                    |
|---------------------------------------------------|----------------------------------|--------------------|
| <b>DART AEROSPACE LTD</b>                         | <b>Work Order:</b> 14658         |                    |
| <b>Description:</b> Crosstube High Aft (412)      | <b>Part Number:</b> D412-664-203 |                    |
| <b>Inspection Dwg:</b> D412-664-243 <b>Rev:</b> F |                                  | <b>Page 1 of 1</b> |

| Required Dimension | Min    | Max    |
|--------------------|--------|--------|
| Height             | 24.12  | 24.62  |
| 1/2 Span           | 53.59  | 53.85  |
| Angle              | 49     | 52     |
| Total Span         | 107.18 | 107.70 |
| Bending Passes     | 8      | --     |
| Crushing           | --     | 7%     |



|                       | Side A | Side B |
|-----------------------|--------|--------|
| <b>Bending Passes</b> | 11     | 11     |
| <b>Crushing</b>       | 7%     | 6.8%   |
| <b>Comments</b>       |        |        |
|                       |        |        |
|                       |        |        |
|                       |        |        |
|                       |        |        |

|                        |             |
|------------------------|-------------|
| <b>QC15 Inspection</b> | <b>Das</b>  |
| <b>Date</b>            | <b>38</b>   |
|                        | <b>8-08</b> |

MAY 12 2016

| Rev | Date     | Change                             | Revised by | Approved |
|-----|----------|------------------------------------|------------|----------|
| A   | 07.02.06 | New Issue                          | KJ/JM      |          |
| B   | 07.05.08 | Dimensions updated per Dwg rev. D  | KJ/JLM     |          |
| C   | 10.02.02 | Dwg Rev updated                    | KJ         |          |
| D   | 12.04.16 | Added bending, crushing dimensions | KJ         |          |
| E   | 14.09.08 | Max crushing % revised             | KJ         |          |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                              |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                              |  |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Step #: _____                                                                                                                                                                      | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | MRB (QSI042) Approval                        |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | Completed By                                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | Lead hand / Supervisor Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | QC / QA Coordinator Approval                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                              |  |
| <b>Root Cause</b><br><div style="display: flex; justify-content: space-between;"> <div>           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div>           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> |                                                                                                                                                                                    | <b>FAULT CATEGORY</b><br><div style="display: flex; justify-content: space-between;"> <div>           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div>           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> <div>           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Mislabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div>           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |                                              |  |
| OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                              |  |



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO32491**

Purchase Order Date 5/26/2016

PO Print Date 5/27/2016

Page Number 2 of 3

Order From :  
SKYSERVICE  
6120 MIDFIELD ROAD  
MISSISSAUGA, ONTARIO L5P 1B1  
CANADA

VC-SKY001

Ship To : DART AEROSPACE LTD  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

Contact Name  
Vendor Phone 905-678-5636  
  
Ship To Contact  
Ship To Phone  
Ship Via: Delivered  
Ship Acct:

Buyer Chantal Lavoie  
Customer POID  
Customer Tax # 10127-2607  
Terms Net 30  
Currency CAD  
FOB FCA - (Free Carrier)

Line Total: \$0.00

|   |        |                           |           |      |        |        |
|---|--------|---------------------------|-----------|------|--------|--------|
| 3 | 146186 | D412-664-203<br>CROSSTUBE | 5/26/2016 | 1.00 | \$0.00 | \$0.00 |
|---|--------|---------------------------|-----------|------|--------|--------|

Yes  
5/26/2016

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR  
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$0.00

|   |        |                           |           |      |        |        |
|---|--------|---------------------------|-----------|------|--------|--------|
| 4 | 146187 | D412-664-203<br>CROSSTUBE | 5/26/2016 | 1.00 | \$0.00 | \$0.00 |
|---|--------|---------------------------|-----------|------|--------|--------|

Yes  
5/26/2016

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR  
LPI AS PER ASTM 1417 LEVEL 2

**DAS  
13  
9-89**

**MAY 27 2016**

Line Total: \$0.00

|   |        |                           |           |      |        |        |
|---|--------|---------------------------|-----------|------|--------|--------|
| 5 | 146188 | D412-664-203<br>CROSSTUBE | 5/26/2016 | 1.00 | \$0.00 | \$0.00 |
|---|--------|---------------------------|-----------|------|--------|--------|

Yes  
5/26/2016

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR  
LPI AS PER ASTM 1417 LEVEL 2

Note:

5/27/2016

**skyservice****Work Order Traveler**

Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.7142 / BDA AMO 385

|                          |                                      |                      |                         |
|--------------------------|--------------------------------------|----------------------|-------------------------|
| <b>WO #:</b> MWO28366    | <b>Customer:</b> Dart Aerospace Ltd. | <b>Dept:</b> NDT YUL | <b>Reference:</b> 32491 |
| <b>Descr:</b>            | <b>PN:</b>                           | <b>S/N:</b>          | <b>Qty:</b> 1           |
| <b>Make:</b>             | <b>Model:</b>                        | <b>Reg:</b>          | <b>A/C S/N:</b>         |
| <b>TSN:</b>              | <b>CSN:</b>                          | <b>TSO:</b>          |                         |
| <b>Task:</b> UNSCHEDULED |                                      |                      | <b>Sequence:</b> 1      |

**Work Required:**

CARRY OUT NDT ON 4 CROSSTUBES AS PER PO32491

4 AFT CROSSTUBES, ITEM ID# D412-664-203 , WORK ORDERS ID# 145694, 146186, 146187, 146188

|                                                                                                                                            |                 |                   |                                                                                                    |              |                |               |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------|----------------------------------------------------------------------------------------------------|--------------|----------------|---------------|
| <b>Action Taken:</b>                                                                                                                       |                 | <b>Date:</b>      | <b>Initial/Stamp:</b>                                                                              |              |                |               |
| LPI C/O IAW ASTM E-1417M-13<br><br>***NO CRACK FOUND***<br><br>PEN. ZL-56, MPO13600, UV M-20141, CLEANER SKC-S MPO13923 ,<br>DEV. MPO11715 |                 | MAY 27 2016       | MAY 26 2016<br> |              |                |               |
| <b>Description</b>                                                                                                                         | <b>Location</b> | <b>P/N</b>        | <b>Qty</b>                                                                                         | <b>Batch</b> | <b>S/N Off</b> | <b>S/N On</b> |
|                                                                                                                                            |                 |                   |                                                                                                    |              |                |               |
|                                                                                                                                            |                 |                   |                                                                                                    |              |                |               |
|                                                                                                                                            |                 | DAS<br>13<br>9-89 |                                                                                                    |              |                |               |
|                                                                                                                                            |                 | MAY 31 2016       |                                                                                                    |              |                |               |
|                                                                                                                                            |                 |                   |                                                                                                    |              |                |               |
|                                                                                                                                            |                 |                   |                                                                                                    |              |                |               |

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

|                             |                                                                                       |              |
|-----------------------------|---------------------------------------------------------------------------------------|--------------|
| <b>Signature:</b>           | <b>ACA/SCA Stamp</b>                                                                  | <b>Date:</b> |
| <b>Name:</b> RAFIK MELIKIAN |  | MAY 26 2016  |

Work Order ID 146187

\*146187\*

Page 1

Tuesday, May 10, 2016 4:01:16 PM

Item ID: D412-664-203

Accept

\*N9000040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Aft Crosstube - High

Start Date: 5/10/2016 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 6/3/2016 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Run Start \*NR1\*

Approvals:

Process Plan:                     Date: 10-5-10Tooling:                     Date:                     

Stop \*NR2\*

QC:                     Date:                     SPC (Y/N):                     Date:                     

| Sequence ID/<br>Work Center ID | Operation<br>Description                                                            | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|-------------------------------------------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| <b>Draw Nbr</b>                | <b>Revision Nbr</b>                                                                 |                      |         |        |              |               |               |                  |                |
| D412-664-243                   | F                                                                                   | 0.00                 |         |        |              |               |               |                  |                |
| 100                            | Document Control                                                                    | 0.00                 |         |        |              |               |               |                  |                |
| *100*                          | DOCUMENT CONTROL                                                                    |                      |         |        |              |               |               |                  |                |
| DC                             | Memo                                                                                | 0.00                 |         |        |              |               |               |                  |                |
| Doc Control -USB or Paperwork  | Photocopy bluefile and create labels as per PRP D412-664-203 CHG 010                |                      |         |        |              |               |               |                  |                |
| 110                            | Packaging                                                                           | 0.00                 |         |        |              |               |               |                  |                |
| *110*                          |                                                                                     |                      |         |        |              |               |               |                  |                |
| Packaging                      | Memo                                                                                | 3.20                 |         |        |              |               |               |                  |                |
| Packaging                      |                                                                                     |                      |         |        |              |               |               |                  |                |
| 120                            | BENDING MACHINE - CROSSTUBES                                                        | 0.28                 |         |        |              |               |               |                  |                |
| *120*                          |                                                                                     |                      |         |        |              |               |               |                  |                |
| CNC Bend 2                     | Memo                                                                                | 1.04                 |         |        |              |               |               |                  |                |
| CNC Alpha 160 Bender           | Bend tube as per Dwg D412-664-243 using CNC bender program 412-aft and Folio 1/T010 |                      |         |        |              |               |               |                  |                |

MAY 27 2016

MCS MAY 30 2016

16-05-11

16-05-11

Work Order ID 146187

\*146187\*

Tuesday, May 10, 2016 4:01:16 PM

Item ID: D412-664-203

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Aft Crosstube - High

Start Date: 5/10/2016 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 6/3/2016 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Run Start \*NR1\*

Approvals:

Process Plan: WVDate: 16-5-10

Tooling:

Date:

Stop \*NR2\*

QC:

Date:

SPC (Y/N):

Date:

| Sequence ID/<br>Work Center ID | Operation<br>Description                                              | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|-----------------------------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| <b>Draw Nbr</b>                | <b>Revision Nbr</b>                                                   |                      |         |        |              |               |               |                  |                |
| D412-664-243                   | F                                                                     | 0.00                 |         |        |              |               |               |                  |                |
| 100                            | Document Control                                                      | 0.00                 |         |        |              |               |               |                  |                |
| <b>*100*</b>                   | DOCUMENT CONTROL                                                      | 0.00                 |         |        |              |               |               |                  |                |
| DOC                            | Memo                                                                  |                      |         |        |              |               |               |                  |                |
| Doc Control - USB or Paperwork | Photocopy bluefile and create labels as per PPP D412-664-203 CHG 010  |                      |         |        |              |               |               |                  |                |
| 110                            | Packaging                                                             | 0.00                 |         |        |              |               |               |                  |                |
| <b>*110*</b>                   | Memo                                                                  | 3.20                 |         |        |              |               |               |                  |                |
| Packaging                      |                                                                       |                      |         |        |              |               |               |                  |                |
| Packaging                      |                                                                       |                      |         |        |              |               |               |                  |                |
| 120                            | BENDING MACHINE - CROSSTUBES                                          | 0.28                 |         |        |              |               |               |                  |                |
| <b>*120*</b>                   | Memo                                                                  | 1.04                 |         |        |              |               |               |                  |                |
| CNC Bend 2                     | Bend tube as per Dwg D412-664-243 using CNC bender program 412-af and |                      |         |        |              |               |               |                  |                |
| CNC Alpha 160 Bender           | Radio FP010                                                           |                      |         |        |              |               |               |                  |                |

MAY 77 2016

16-05-11

16-05-11